# Project Performance Domains

## CS413 - Software Engineering Project Management

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# Project Performance Domains

- A project **performance domain** is a **group of related activities** that are critical for the **effective delivery** of project outcomes

- Project performance domains are **interactive**, **interrelated**, and **interdependent** areas of focus that work in unison to achieve desired project outcomes

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# Project Performance Domains

- Stakeholder

- Team

- Development Approach and Life Cycle

- Planning

- Project Work

- Delivery

- Measurement

- Uncertainty

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## STAKEHOLDER PERFORMANCE DOMAIN

The Stakeholder Performance Domain addresses activities and functions associated with stakeholders.

Effective execution of this performance domain results in the following desired outcomes:

▶ A productive working relationship with stakeholders throughout the project.

▶ Stakeholder agreement with project objectives.

▶ Stakeholders who are project beneficiaries are supportive and satisfied while stakeholders who may oppose the project or its deliverables do not negatively impact project outcomes.

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# Stakeholder

- **Stakeholder**. An individual, group, or organization that may affect, be affect ed by, or perceive itself to be affected by a decision, activity, or outcome of a project, program, or portfolio
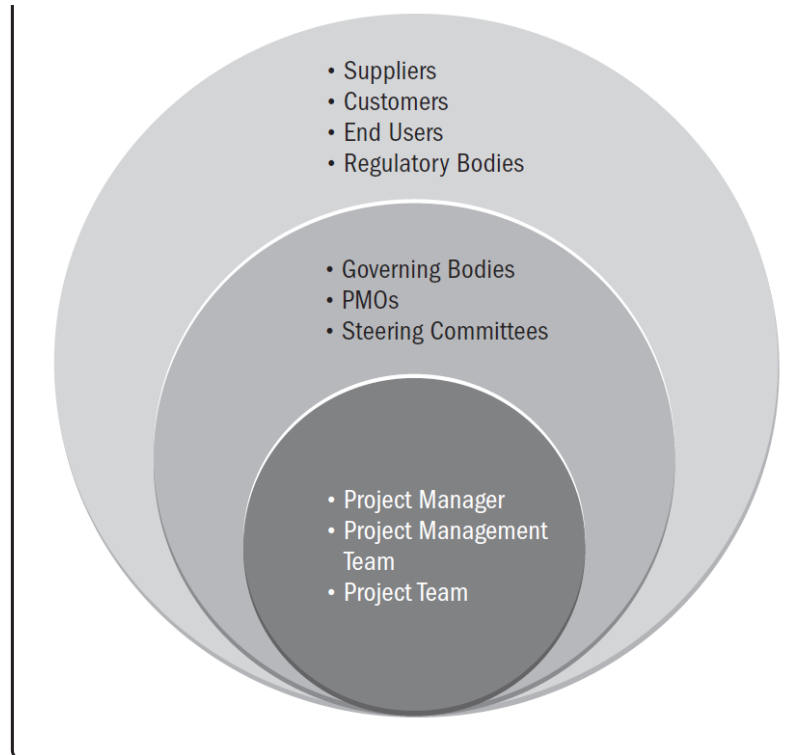
# Stakeholder

- **Stakeholder Analysis**. A method of systematically gathering and analyzing quantitative and qualitative information to determine whose interests should be taken into account throughout the project
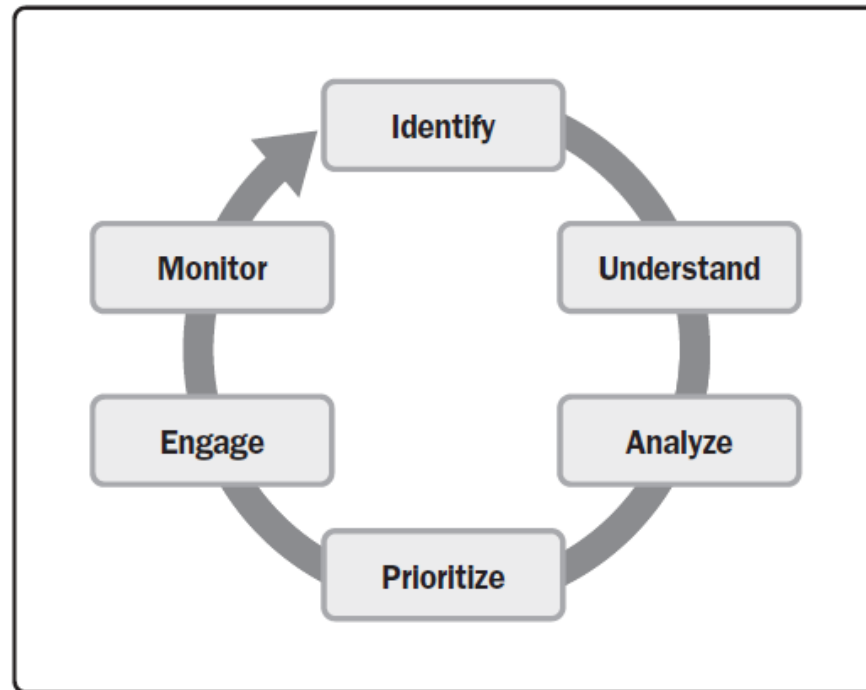
# Stakeholder

- Suppliers
- Customers
- End Users
- Regulatory Bodies

- Governing Bodies
- PMOs
- Steering Committees

- Project Manager
- Project Management Team
- Project Team

**Examples of Project Stakeholders**

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# Stakeholder



**Navigating Effective Stakeholder Engagement**

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## Checking Outcomes—Stakeholder Performance Domain

| Outcome | Check |
|---------|-------|
| A productive working relationship with stakeholders throughout the project | Productive working relationships with stakeholders can be observed. However, the movement of stakeholders along a continuum of engagement can indicate the relative level of satisfaction with the project. |
| Stakeholder agreement with project objectives | A significant number of changes or modifications to the project and product requirements in addition to the scope may indicate stakeholders are not engaged or aligned with the project objectives. |
| Stakeholders who are project beneficiaries are supportive and satisfied; stakeholders who may oppose the project or its deliverables do not negatively impact project results | Stakeholder behavior can indicate whether project beneficiaries are satisfied and supportive of the project or whether they oppose it. Surveys, interviews, and focus groups are also effective ways to determine if stakeholders are satisfied and supportive or if they oppose the project and its deliverables. <br><br> A review of the project issue register and risk register can identify challenges associated with individual stakeholders. |

# TEAM PERFORMANCE DOMAIN

**The Team Performance Domain addresses activities and functions associated with the people who are responsible for producing project deliverables that realize business outcomes.**

Effective execution of this performance domain results in the following desired outcomes:

▶ Shared ownership.

▶ A high-performing team.

▶ Applicable leadership and other interpersonal skills demonstrated by all team members.

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# Team

- **Project Manager**. The person assigned by the performing organization to lead the project team that is responsible for achieving the project objectives

- **Project Management Team**. The members of the project team who are directly involved in Project management activities

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# Team

- **Project Team**. A set of individuals performing the work of the project to achieve its objectives

# High-performing Project Teams

- Open communication
- Shared understanding
- Shared ownership
- Trust
- Collaboration

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# High-performing Project Teams

- Adaptability

- Resilience

- Empowerment

- Recognition

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## Checking Outcomes—Team Performance Domain

| Outcome | Check |
|---------|-------|
| Shared ownership | All project team members know the vision and objectives. The project team owns the deliverables and outcomes of the project. |
| A high-performing team | The project team trusts each other and collaborates. The project team adapts to changing situations and is resilient in the face of challenges. The project team feels empowered and empowers and recognizes members of the project team. |
| Applicable leadership and other interpersonal skills are demonstrated by all project team members | Project team members apply critical thinking and interpersonal skills. Project team member leadership styles are appropriate to the project context and environment. |

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## DEVELOPMENT APPROACH AND LIFE CYCLE PERFORMANCE DOMAIN

The Development Approach and Life Cycle Performance Domain addresses activities and functions associated with the development approach, cadence, and life cycle phases of the project.

Effective execution of this performance domain results in the following desired outcomes:

▶ Development approaches that are consistent with project deliverables.

▶ A project life cycle consisting of phases that connect the delivery of business and stakeholder value from the beginning to the end of the project.

▶ A project life cycle consisting of phases that facilitate the delivery cadence and development approach required to produce the project deliverables.

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# Development Approach and Life Cycle

- **Deliverable**. Any unique and verifiable product, result, or capability to per form a service that is required to be produced to complete a process, phase, or project

- **Development Approach**. A method used to create and evolve the product, service, or result during the project life cycle, such as a predictive, iterative, incremental, adaptive, or hybrid method
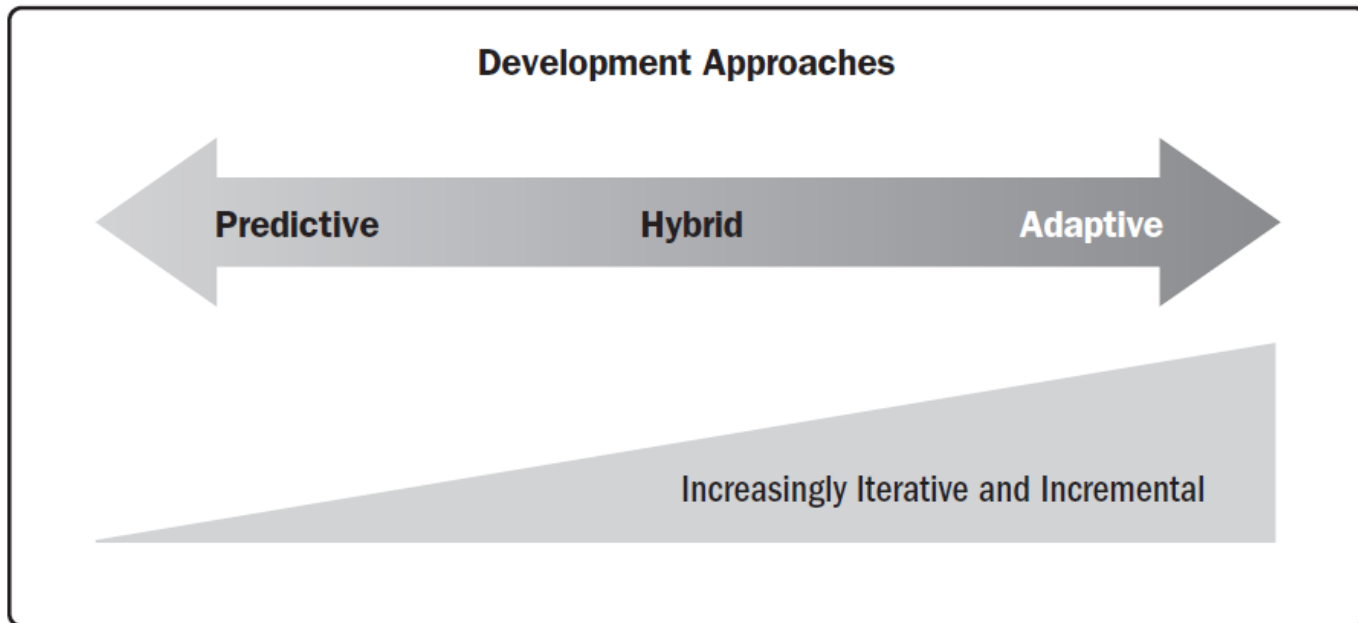
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# Development Approach and Life Cycle

- **Cadence**. A rhythm of activities conducted throughout the project

- **Project Phase**. A collection of logically related project activities that culminates in the completion of one or more deliverables

- **Project Life Cycle**. The series of phases that a project passes through from its start to its completion
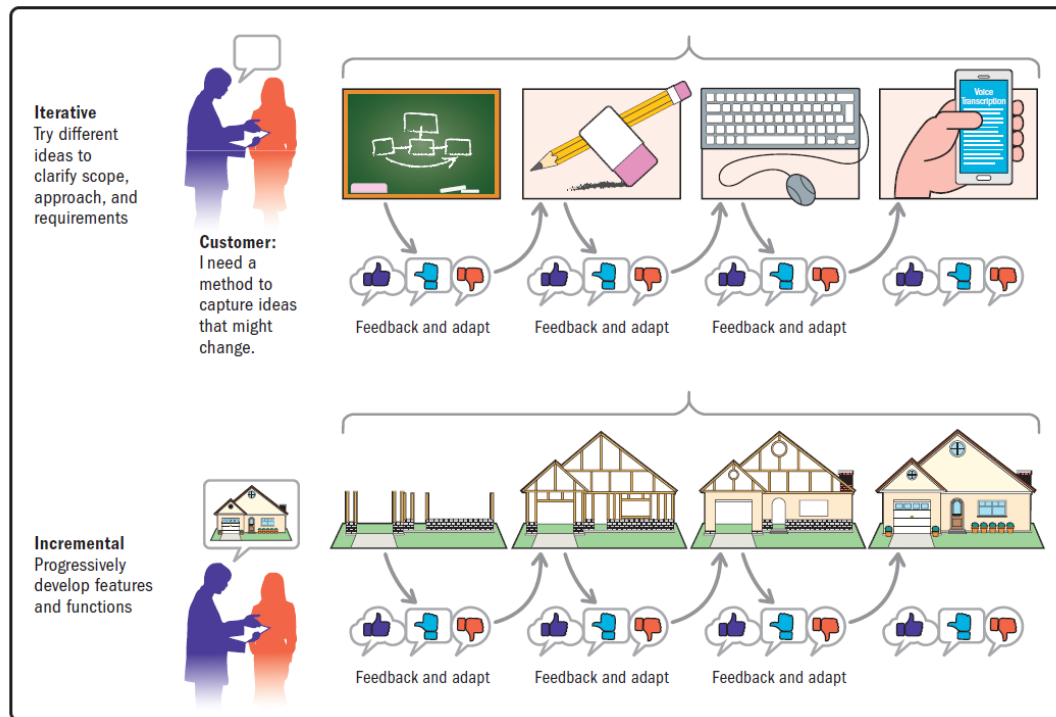
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# Development Approach and Life Cycle

**Development Approaches**

Predictive    Hybrid    Adaptive

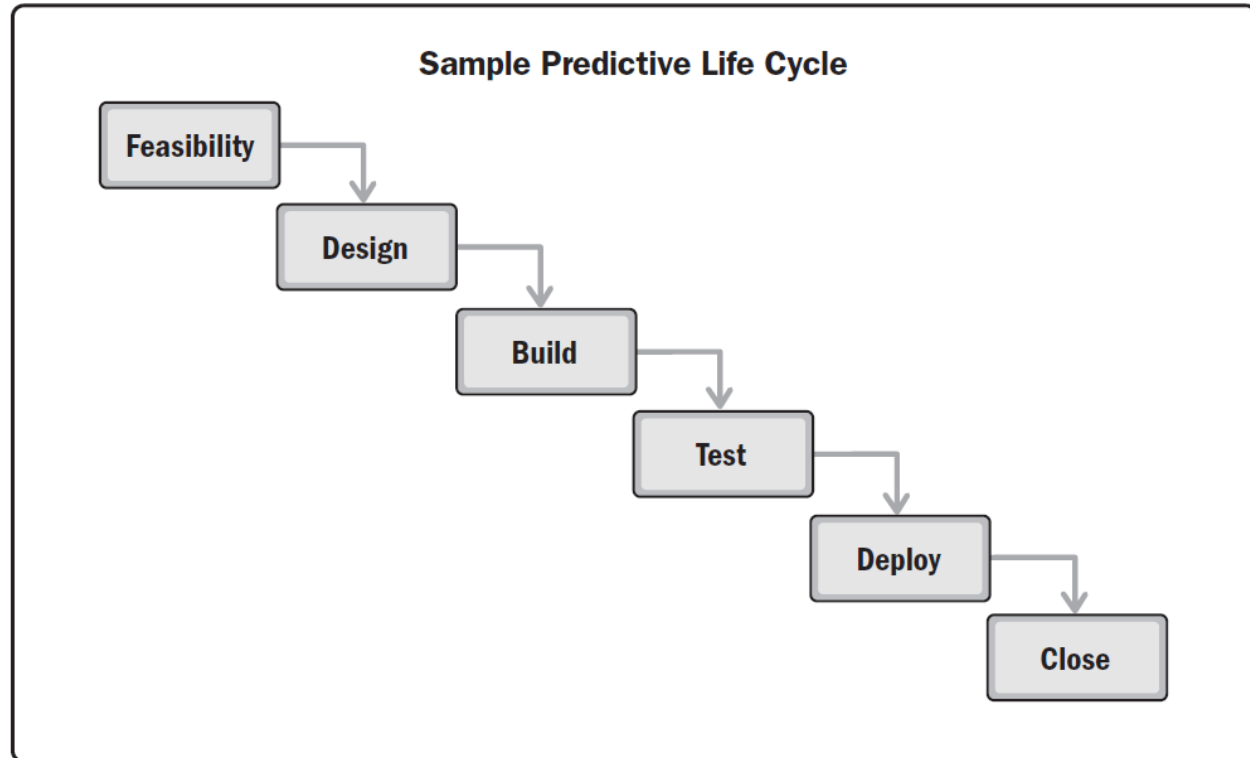Increasingly Iterative and Incremental

**Development Approaches**

# Development Approach and Life Cycle



**Iterative and Incremental Development**

# Development Approach and Life Cycle

**Sample Predictive Life Cycle**

Feasibility → Design → Build → Test → Deploy → Close

# Development Approach and Life Cycle



Sample Life Cycle with an Incremental Development Approach

# Development Approach and Life Cycle



**Life Cycle Using Adaptive Development Approach**

Define Project and Product Vision

Iteration 1     Iteration 2     Iteration 3

Feedback Backlog Prioritization     Feedback Backlog Prioritization

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## Checking Outcomes—Development Approach and Life Cycle Performance Domain

| Outcome | Check |
|---|---|
| Development approaches that are consistent with project deliverables | The development approach for deliverables (predictive, hybrid, or adaptive) reflects the product variables and is appropriate given the project and organizational variables. |
| A project life cycle consisting of phases that connect the delivery of business and stakeholder value from the beginning to the end of the project | Project work from launch to close is represented in the project phases. Phases include appropriate exit criteria. |
| Project life cycle phases that facilitate the delivery cadence and development approach required to produce the project deliverables | The cadence for development, testing, and deploying is represented in the life cycle phases. Projects with multiple deliverables that have different delivery cadences and development methods are represented by overlapping phases or phase repetitions, as necessary. |

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## PLANNING PERFORMANCE DOMAIN

The Planning Performance Domain addresses activities and functions associated with the initial, ongoing, and evolving organization and coordination necessary for delivering project deliverables and outcomes.

Effective execution of this performance domain results in the following desired outcomes:

▶ The project progresses in an organized, coordinated, and deliberate manner.

▶ There is a holistic approach to delivering the project outcomes.

▶ Evolving information is elaborated to produce the deliverables and outcomes for which the project was undertaken.

▶ Time spent planning is appropriate for the situation.

▶ Planning information is sufficient to manage stakeholder expectations.

▶ There is a process for the adaptation of plans throughout the project based on emerging and changing needs or conditions.

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# Planning

- **Estimate**. A quantitative assessment of the likely amount or outcome of a variable, such as project costs, resources, effort, or durations

- **Accuracy**. Within the quality management system, accuracy is an assessment of correctness

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# Planning

- **Precision**. Within the quality management system, precision is an assessment of exactness

- **Crashing**. A method used to shorten the schedule duration for the least incremental cost by adding resources

# Planning

- **Fast Tracking**. A schedule compression method in which activities or phases normally done in sequence are performed in parallel for at least a portion of their duration

- **Budget**. The approved estimate for the project or any work breakdown structure (WBS) component or any schedule activity

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# Planning

- The purpose of planning is to proactively develop an approach to create the project deliverables

- The project deliverables drive the outcomes the project was undertaken to achieve

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# Planning

- High-level planning may begin prior to project authorization

- The project team progressively elaborates initial project documents, such as a vision statement, project charter, business case, or similar documents to identify or define a coordinated path to achieve the desired outcomes

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## Checking Outcomes—Planning Performance Domain

| Outcome | Check |
|---|---|
| The project progresses in an organized, coordinated, and deliberate manner. | A performance review of project results against the project baselines and other measurement metrics demonstrates that the project is progressing as planned. Performance variances are within thresholds. |
| There is a holistic approach to delivering the project outcomes. | The delivery schedule, funding, resource availability, procurements, etc., demonstrate that the project is planned in a holistic manner with no gaps or areas of misalignment. |
| Evolving information is elaborated to produce the deliverables and outcomes for which the project was undertaken. | Initial information about deliverables and requirements compared to current information demonstrates appropriate elaboration. Current information compared to the business case indicates the project will produce the deliverables and outcomes it was undertaken to deliver. |
| Time spent planning is appropriate for the situation. | Project plans and documents demonstrate that the level of planning is appropriate for the project. |
| Planning information is sufficient to manage stakeholder expectations. | The communications management plan and stakeholder information indicate that the communications are sufficient to manage stakeholder expectations. |
| There is a process for the adaptation of plans throughout the project, based on emerging and changing needs or conditions. | Projects using a backlog show the adaptation of plans throughout the project. Projects using a change control process have change logs and documentation from change control board meetings that demonstrate the change control process is being applied. |

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# PROJECT WORK PERFORMANCE DOMAIN

**The Project Work Performance Domain addresses activities and functions associated with establishing project processes, managing physical resources, and fostering a learning environment.**

Effective execution of this performance domain results in the following desired outcomes:

▶ Efficient and effective project performance.

▶ Project processes are appropriate for the project and the environment.

▶ Appropriate communication with stakeholders.

▶ Efficient management of physical resources.

▶ Effective management of procurements.

▶ Improved team capability due to continuous learning and process improvement.

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# Project Work

- **Bid Documents**. All documents used to solicit information, quotations, or proposals from prospective sellers

- **Bidder Conference**. The meetings with prospective sellers prior to the preparation of a bid or proposal to ensure all prospective vendors have a clear and common understanding of the procurement

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# Project Work

- **Explicit Knowledge**. Knowledge that can be codified using symbols such as words, numbers, and pictures

- **Tacit Knowledge**. Personal knowledge that can be difficult to articulate and share such as beliefs, experience, and insights

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# Project Work

- Managing the flow of existing work, new work, and changes to work

- Keeping the project team focused

- Establishing efficient project systems and processes

- Communicating with stakeholders

- Managing material, equipment, supplies, and logistics

# Project Work

- Working with contracting professionals and vendors to plan and manage procurements and contracts

- Monitoring changes that can affect the project

- Enabling project learning and knowledge transfer

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**Checking Outcomes—Project Work Performance Domain**

| Outcome | Check |
|---|---|
| Efficient and effective project performance | Status reports show that project work is efficient and effective. |
| Project processes that are appropriate for the project and the environment | Evidence shows that the project processes have been tailored to meet the needs of the project and the environment. Process audits and quality assurance activities show that the processes are relevant and being used effectively. |
| Appropriate communication and engagement with stakeholders | The project communications management plan and communication artifacts demonstrate that the planned communications are being delivered to stakeholders. There are few ad hoc requests for information or misunderstandings that might indicate engagement and communication activities are not effective. |
| Efficient management of physical resources | The amount of material used, scrap discarded, and amount of rework indicate that resources are being used efficiently. |
| Effective management of procurements | A procurement audit demonstrates that appropriate processes utilized were sufficient for the procurement and that the contractor is performing to plan. |
| Effective handling of change | Projects using a predictive approach have a change log that demonstrates changes are being evaluated holistically with consideration for scope, schedule, budget, resource, stakeholder, and risk impacts. Projects using an adaptive approach have a backlog that shows the rate of accomplishing scope and the rate of adding new scope. |
| Improved capability due to continuous learning and process improvement | Team status reports show fewer errors and rework with an increase in velocity. |

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# DELIVERY PERFORMANCE DOMAIN

The Delivery Performance Domain addresses activities and functions associated with delivering the scope and quality that the project was undertaken to achieve.

Effective execution of this performance domain results in the following desired outcomes:

▶ Projects contribute to business objectives and advancement of strategy.

▶ Projects realize the outcomes they were initiated to deliver.

▶ Project benefits are realized in the time frame in which they were planned.

▶ The project team has a clear understanding of requirements.

▶ Stakeholders accept and are satisfied with project deliverables.

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# Delivery

- **Requirement**. A condition or capability that is necessary to be present in a product, service, or result to satisfy a business need

- **Work Breakdown Structure (WBS)**. A hierarchical decomposition of the total scope of work to be carried out by the project team to accomplish the project objectives and deliverables

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# Delivery

- **Definition of Done (DoD)**. A checklist of all the criteria required to be met so that a deliverable can be considered ready for customer use

- **Quality**. The degree to which a set of inherent characteristics fulfills requirements
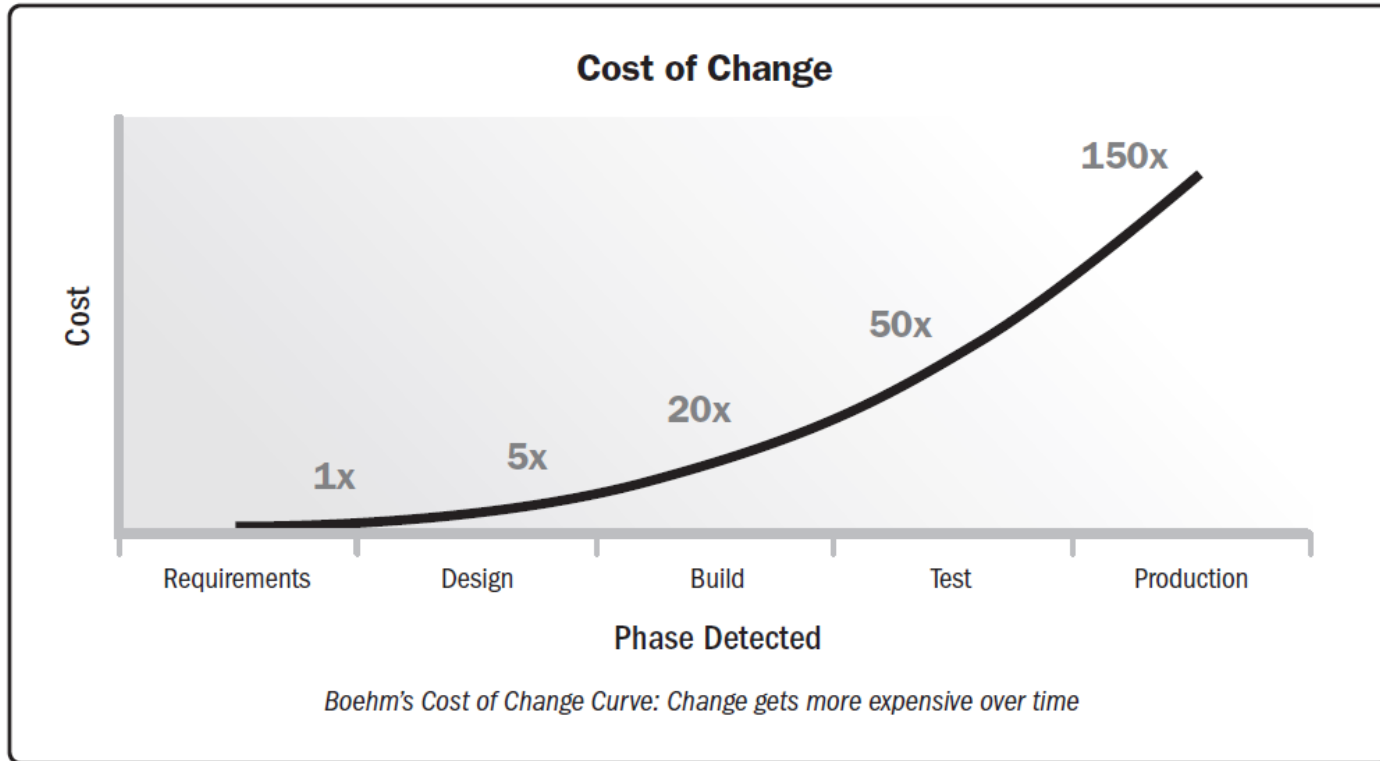
# Delivery

- **Cost of Quality (COQ)**. All costs incurred over the life of the product by investment in preventing nonconformance to requirements, appraisal of the product or service for conformance to requirements, and failure to meet requirements

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# Delivery



**Cost of Change**

Cost (y-axis)

Phase Detected (x-axis): Requirements, Design, Build, Test, Production

1x, 5x, 20x, 50x, 150x

*Boehm's Cost of Change Curve: Change gets more expensive over time*

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## Checking Outcomes—Delivery Performance Domain

| Outcome | Check |
|---|---|
| Projects contribute to business objectives and advancement of strategy | The business plan and the organization's strategic plan, along with the project authorizing documents, demonstrate that the project deliverables and business objectives are aligned. |
| Projects realize the outcomes they were initiated to deliver | The business case and underlying data indicate the project is still on track to realize the intended outcomes. |
| Project benefits are realized in the time frame in which they were planned | The benefits realization plan, business case, and/or schedule indicate that the financial metrics and scheduled deliveries are being achieved as planned. |
| The project team has a clear understanding of requirements | In predictive development, little change in the initial requirements reflects understanding. In projects where requirements are evolving, a clear understanding of requirements may not take place until well into the project. |
| Stakeholders accept and are satisfied with project deliverables | Interviews, observation, and end user feedback indicate stakeholder satisfaction with deliverables. Levels of complaints and returns can also be used to indicate satisfaction. |

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## MEASUREMENT PERFORMANCE DOMAIN

The Measurement Performance Domain addresses activities and functions associated with assessing project performance and taking appropriate actions to maintain acceptable performance.

Effective execution of this performance domain results in the following desired outcomes:

▶ A reliable understanding of the status of the project.

▶ Actionable data to facilitate decision making.

▶ Timely and appropriate actions to keep project performance on track.

▶ Achieving targets and generating business value by making informed and timely decisions based on reliable forecasts and evaluations.

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# Measurement

- **Metric**. A description of a project or product attribute and how to measure it

- **Baseline**. The approved version of a work product used as a basis for comparison to actual results

- **Dashboard**. A set of charts and graphs showing progress or performance against important measures of the project

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# **Measurement**

- Measures are used for multiple reasons

  - Evaluating performance compared to plan

  - Tracking the utilization of resources, work completed, budget expended, etc.

  - Demonstrating accountability

  - Providing information to stakeholders

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# Measurement

- Assessing whether project deliverables are on track to deliver planned benefits

- Focusing conversations about trade-offs, threats, opportunities, and options

- Ensuring the project deliverables will meet customer acceptance criteria

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# **Measurement**

- Characteristics of effective metrics (SMART)
  - Specific
  - Meaningful
  - Achievable
  - Relevant
  - Timely

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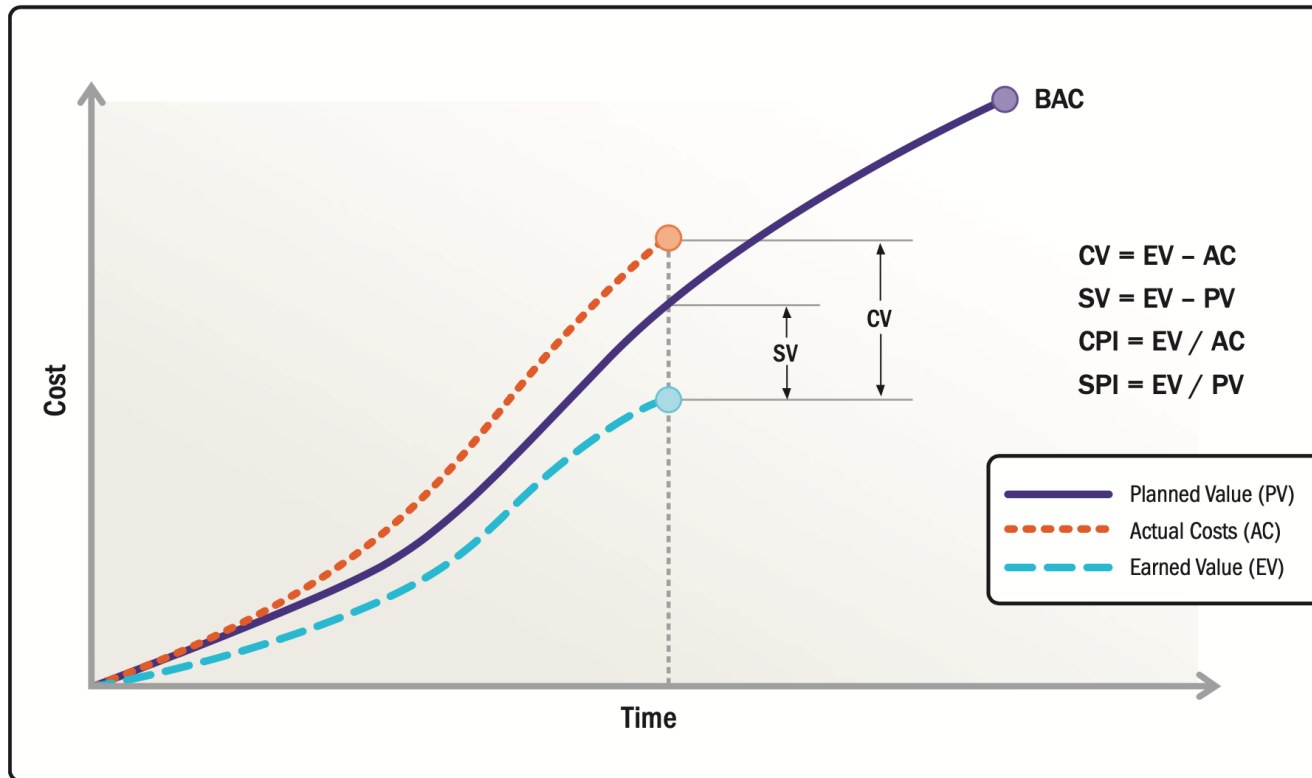
# **Measurement**

- Common categories of metrics

  - Deliverable metrics

  - Delivery

  - Baseline performance

  - Resources

  - Business value

  - Stakeholders

  - Forecasts

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# Measurement



CV = EV − AC
SV = EV − PV
CPI = EV / AC
SPI = EV / PV

Planned Value (PV)
Actual Costs (AC)
Earned Value (EV)

**Earned Value Analysis Showing Schedule and Cost Variance**

## Checking Outcomes—Measurement Performance Domain

| Outcome | Check |
|---|---|
| A reliable understanding of the status of the project | Audit measurements and reports demonstrate if data is reliable. |
| Actionable data to facilitate decision making | Measurements indicate whether the project is performing as expected or if there are variances. |
| Timely and appropriate actions to keep project performance on track | Measurements provide leading indicators and/or current status leads to timely decisions and actions. |
| Achieving targets and generating business value by making informed and timely decisions based on reliable forecasts and evaluations | Reviewing past forecasts and current performance demonstrates if previous forecasts reflect the present accurately. Comparing the actual performance to the planned performance and evaluating business documents will show the likelihood of achieving intended value from the project. |

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## UNCERTAINTY PERFORMANCE DOMAIN

The Uncertainty Performance Domain addresses activities and functions associated with risk and uncertainty.

Effective execution of this performance domain results in the following desired outcomes:

▶ An awareness of the environment in which projects occur, including, but not limited to, the technical, social, political, market, and economic environments.

▶ Proactively exploring and responding to uncertainty.

▶ An awareness of the interdependence of multiple variables on the project.

▶ The capacity to anticipate threats and opportunities and understand the consequences of issues.

▶ Project delivery with little or no negative impact from unforeseen events or conditions.

▶ Opportunities are realized to improve project performance and outcomes.

▶ Cost and schedule reserves are utilized effectively to maintain alignment with project objectives.

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# Uncertainty

- **Uncertainty**. A lack of understanding and awareness of issues, events, paths to follow, or solutions to pursue

- **Ambiguity**. A state of being unclear, having difficulty in identifying the cause of events, or having multiple options from which to choose

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# Uncertainty

- **Complexity**. A characteristic of a program or project or its environment that is difficult to manage due to human behavior, system behavior, and ambiguity
- **Volatility**. The possibility for rapid and unpredictable change

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# Uncertainty

- **Risk**. An uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives

- **Overall Project Risk**. The effect of uncertainty on the project as a whole, arising from all sources of uncertainty. A function of complexity, ambiguity, and volatility

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# Risk Types

- **Threats**. An event or condition that, if it occurs, has a negative impact on one or more objectives

# Strategies for Threats

- Alternative strategies for dealing with:

  - Avoid

    - Threat avoidance is when the project team acts to eliminate the threat or protect the project from its impact

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# **Strategies for Threats**

- Escalate
  - Appropriate when the project team or the project sponsor agrees that a threat is outside the scope of the project or that the proposed response would exceed the project manager's authority

# **Strategies for Threats**

- Transfer

  - Involves shifting ownership of a threat to a third party to manage the risk and to bear the impact if the threat occurs

- Mitigate

  - Action is taken to reduce the probability of occurrence and/or impact of a threat. Early mitigation action is often more effective than trying to repair the damage after the threat has occurred

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# **Strategies for Threats**

- Accept
  - Threat acceptance acknowledges the existence of a threat, but no proactive action is planned. Actively accepting a risk can include developing a contingency plan that would be triggered if the event occurred; or it can include passive acceptance, which means doing nothing

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# Risk Types

- **Opportunities**. An event or condition that, if it occurs, has a positive impact on one or more project objectives

  - A time and materials-based subcontractor who finishes work early, resulting in lower costs and schedule savings

# Strategies for Opportunities

- Alternative strategies for dealing with:

  - Exploit

    - A response strategy whereby the project team acts to ensure that an opportunity occurs.

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# **Strategies for Opportunities**

- Escalate

  - As with threats, this opportunity response strategy is used when the project team or the project sponsor agrees that an opportunity is outside the scope of the project or that the proposed response would exceed the project manager's authority

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# **Strategies for Opportunities**

- Share

  - Opportunity sharing involves allocating ownership of an opportunity to a third party who is best able to capture the benefit of that opportunity

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# Strategies for Opportunities

- Enhance

    - In opportunity enhancement, the project team acts to increase the probability of occurrence or impact of an opportunity. Early enhancement action is often more effective than trying to improve the opportunity after it has occurred

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# **Strategies for Opportunities**

- Accept

    - As with threats, accepting an opportunity acknowledges its existence but no proactive action is planned

Project Performance Domains

**Checking Outcomes—Uncertainty Performance Domain**

| Outcome | Check |
|---|---|
| An awareness of the environment in which projects occur, including, but not limited to, the technical, social, political, market, and economic environments | The team incorporates environmental considerations when evaluating uncertainty, risks, and responses. |
| Proactively exploring and responding to uncertainty | Risk responses are aligned with the prioritization of project constraints, such as budget, schedule, and performance. |
| An awareness of the interdependence of multiple variables on the project | Actions to address complexity, ambiguity, and volatility are appropriate for the project. |
| The capacity to anticipate threats and opportunities and understand the consequences of issues | Systems for identifying, capturing, and responding to risk are appropriately robust. |
| Project delivery with little or no negative impact from unforeseen events or conditions | Scheduled delivery dates are met, and the budget performance is within the variance threshold. |
| Realized opportunities to improve project performance and outcomes | Teams use established mechanisms to identify and leverage opportunities. |
| Cost and schedule reserves used effectively to maintain alignment with project objectives | Teams take steps to proactively prevent threats, thereby limiting use of cost or schedule reserve. |

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# References

- Project Management Body of Knowledge (PMBOK) - 7th Edition

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